

### **ABSTRACT**

Disclosed is a gas laser utilizing radio frequency excitation in the area of sonic or supersonic/subsonic transfer gas flow. The laser uses various types of gases and mixtures of gases as the active medium using radio frequency excitation. The gas is supplied into a  
5 supersonic nozzle for acceleration of the active gaseous flow to supersonic or deceleration to high subsonic speeds in order to provide intensive dynamic cooling of the active gas medium. The gas is excited using radio frequency excitation in the critical area of the supersonic nozzle or downstream therefrom. The radio frequency action and excitation can also occur within the  
10 optical resonator region which is located within the supersonic area of the nozzle.